

## EXECUTIVE SUMMARY

HIV/AIDS Annual Report – March 2005  
State of Arizona

### **Changes to the Report Instituted in 2004:**

Prior to 2004, the Arizona Department of Health Services (ADHS) HIV/AIDS Epidemiology Program issued regular semiannual reports for both HIV and AIDS in Arizona. Changes in the HIV/AIDS epidemic have prompted the Centers for Disease Control in Atlanta (CDC) to emphasize capacity building measures within state HIV/AIDS Epidemiology programs, and to focus on incidence measures. These changes provide better quality, more comprehensive data and enhance support to health departments and policy planning groups as they perform their vital role preventing HIV infection, and providing care for those living with HIV/AIDS. The capacity building initiative required changes to the format and content of this report to accommodate expanded incidence and prevalence measurement objectives. Those changes were positively received, and have helped facilitate data-oriented changes at every level during 2004. Changes initiated in 2004 have been maintained in this report.

In reports issued prior to 2004, emphasis was placed upon cumulative cases. Beginning in 2004, regional prevalence estimates (a current count of all HIV positive persons within a given region) were reported instead of cumulative counts. Cumulative counts are not the same as prevalence yet they are often confused with prevalence. In Arizona, where migration is significant, cumulative counts are less informative than prevalence estimates, since cumulative counts do not consider where persons might be now, only where they were at diagnosis. Data on current distribution of persons living with HIV/AIDS is crucial for care and services planning, and prevention efforts.

Similarly, beginning in 2004, estimates of incidence (newly reported, previously unknown cases within a given time period) were reported. In reports prior to 2004 estimates of incidence were inappropriately equated with diagnostic counts. This is problematic in the case of AIDS diagnoses due to lengthy and variable latency periods. Many persons reported as HIV positive are subsequently diagnosed with AIDS when they meet AIDS defining criteria. Such cases should not be included in incidence estimates since they are not new cases, only new *diagnoses* based upon a progression in illness.

Since 2004, estimates of incidence are based upon the sum of new HIV cases, and new AIDS cases which were not diagnosed as HIV infections in any prior calendar year. These cases are referred to as *emergent* cases and are used as an estimate of incidence. Every case of HIV/AIDS may only be counted as *emergent* once – in the year it was first reported. Persons who were *emergent* as HIV and diagnosed as AIDS in the same calendar year are counted as *emergent* AIDS to avoid double counting. This method has limitations, but is the most straightforward method for approximating incidence.

In prior reports, categorical data for race/ethnicity, gender, mode of transmission, and age were reported as cumulative counts back to 1981. This approach can mask recent trends in the epidemic since they contain data from such a long span of time. The span of data covered in this report is limited to 10 years to more clearly define recent trends.

HIV prevalence and incidence among the fifteen Arizona counties need to be considered in the context of differences in population. This is done by reporting case rates (expressed as cases per 100,000 population), first included in this report in 2004, and included again in this report. Prior to that time reports did not include standardized rates, which obscured comparisons and diminished the useful potential of the data. Sparsely populated regions may observe larger fluctuations in rates with small changes in case numbers. This phenomenon is caused by statistical variance, and can often mislead evaluations of change. To minimize this problem, percentages of statewide totals for the year are also reported which, when considered together with local rates, offer a better context for evaluating the scope of epidemic impact. The Arizona Department of Health Services, Office of HIV/AIDS continues to explore other methods to more simply and clearly represent epidemic impact for purposes of comparison across groups or regions.

This report includes current (3/7/05) estimated prevalence, 2003 reported *emergent* case counts, and the 2003 population estimate for each county or region. For comparison to 2002 prevalence or incidence, please refer to the 2004 Annual report. Incidence estimates for the 5-year reporting timeframes (1994-1998 and 1999-2003) used in this report are expressed as annualized rates for purposes of valid comparison with the 5-year timeframes in the 2004 report, or single-year annual rates provided elsewhere. These annualized 5-year rates may be regarded as the average annual rate across the 5 years in the reporting timeframe.

Completion of the Interstate Duplicate Evaluation Project (IDEP) during 2004 reduced Arizona *emergent* counts of HIV infection by several hundred cases. The Inter-State Duplication Evaluation Project (IDEP), sponsored by CDC, resulted in case re-assignments among the fifty states, several territories and the District of Columbia. For the HIV/AIDS Registry maintained by Arizona Department of Health Services, almost 1,200 cases were re-assigned from the state of Arizona to another state or re-assigned from another state to Arizona. These were reports of HIV infection that had been counted as *emergent* in Arizona but were in fact previously diagnosed elsewhere, or cases that had been counted as *emergent* in other states, but were in fact *emergent* in Arizona. Several hundred cases re-assigned by IDEP had already been corrected due to completion of a death registry update by ADHS during 2003 and early 2004. The net change is unknown, pending release of the final report by the CDC. It is estimated that IDEP resulted in a count reduction of between 500 and 700 *emergent* cases in Arizona.

## **Current Data:**

### **Cumulative counts:**

Since 1981, the year in which initial HIV/AIDS cases first appeared in Arizona, there have been 18,019 reports of HIV infection or perinatal exposure made to ADHS, including 14,399 confirmed reports of HIV infection *emergent* in Arizona. Of these:

- 9,230 (64.1%) were *emergent* HIV, and 5,169 (35.9%) were *emergent* AIDS.
- 3,477 of those Arizona *emergent* HIV cases were diagnosed with AIDS in a later year (2,952 were diagnosed in Arizona, and 525 in another state).
- There were 1,670 persons with AIDS and 375 with HIV who were *emergent* cases of HIV infection outside Arizona (total 2,045 persons), moved to Arizona, and were subsequently reported to ADHS.
- There were 381 persons with HIV and 386 with AIDS who were *emergent* in Arizona (total 767 persons), moved to another state, and were subsequently reported in another state.
- As much as 7% of Arizona's reports of HIV disease may be attributed to current migration patterns.

### **Mortality:**

ADHS HIV/AIDS Epidemiology completed an exhaustive review and update of certified deaths among persons with HIV/AIDS in early 2004. Of 17,812 confirmed reports of HIV infection submitted to ADHS, 7.8% (n=488) of HIV cases and 56.8% (n=6,566) of AIDS cases are known to be deceased. The annual number of deaths among persons with AIDS in the state declined in the late 1990's, attributable to the introduction of multi-drug treatment. Between 1999 and 2003 the number of deaths among persons with HIV or AIDS has remained level. There were 198 registered deaths among persons known to be HIV positive in 1999 (rate = 3.94 per 100,000) and 218 deaths in 2003 (rate = 3.91 per 100,000). Because of reporting delays, the current death count for 2004 is lower than prior years. However the current proportion of reported deaths to reported *emergent* cases for 2004 is similar to proportions in prior years.

### **Prevalence:**

Arizona currently has 10,196 (up 486, or 5.0% from 2004) persons known to be living with HIV or AIDS. Among persons now living with HIV infection, 4,678 have a diagnosis of AIDS (up 267, or 6.1% from 2004), and 5,518 have a diagnosis of HIV (up 219, or 4.1% from 2004). The state as a whole has a known HIV disease prevalence rate of 182.7 per 100,000 persons, up slightly from 178.0 in 2004. This shows that Arizona's rate of HIV prevalence is increasing faster than the state population. Based on current prevalence estimates, at least 1 of every 547 persons in Arizona has HIV. But the prevalence of HIV and AIDS in Arizona are disproportionately distributed, occurring predominantly among persons who engage in high-risk sexual activity, and injection drug use. Higher prevalence rates are also observed in urban regions than in rural regions. Considering Arizona counties with population density at or above 50 persons per square mile as urban, and those below 50 as rural, current reported HIV prevalence is 206 per 100,000 among urban counties, and 89 per 100,000 among rural counties. Maricopa and

Pima, Arizona's two urban counties together contain 77% of Arizona's population, but they account for 87% of current HIV prevalence and 87% of *emergent* cases in 2003.

Pima County, the state's second most populous urban county, has the highest prevalence rate of reported HIV Disease (210 per 100,000). Pima County, with 16.0% of the state's population, has 18.4% of reported HIV prevalence and 12.6% of *emergent* cases in 2003. Maricopa County, the state's most populous urban county with 60.7% of the state's population, has 68.2% of reported HIV prevalence (205 per 100,000), and 74.2% of *emergent* cases in 2003.

Arizona's 13 rural counties together contain 23% of the state's population, but only 11.4% of reported HIV prevalence, and 13.2% of *emergent* cases in 2003. All of these counties have HIV prevalence rates below 107 per 100,000 except Pinal County. Pinal County is a rural county (population density = 38 p/sq.mi.) with an estimated prevalence rate of 160 per 100,000, and a 5-year incidence rate equal to that of Maricopa County, the most urbanized county in the state. Pinal County, together with Graham County, is unusual in having a proportionately large incarcerated population (5.2% in Pinal, 7.9% in Graham).

Two percent of reported prevalence is among persons who have no known current address. These are persons who are lost to follow-up due to being chronically homeless, out of state, or whose status may be unreported deceased. It is expected that a disproportionate number of these are likely to be present in urban locations, but they are not included in the urban or rural prevalence data reported above. Homeless persons are typically difficult to track by conventional means, and are found primarily in urban settings.

#### Incidence:

In the past decade, the annual rate for reported *emergent* HIV infection has shown a steady decline from 24.4 per 100,000 in 1990 to 12.4 per 100,000 in 2003. The rate of reported *emergent* HIV infection in 2003 is the lowest observed in the last 4 years, and the first decline in *emergent* case rates since 1999. Arizona's estimated annual rate of HIV/AIDS infection (21.13/100,000 in 2003) is roughly 70% of the national rate (29.31/100,000 in 2003). Both rates are adjusted upward to include estimates of infected persons who are not reported.

During 2004 ADHS HIV/AIDS program initiated the Serological Testing Algorithm for Recent HIV Sero-conversion (STARHS) as a component of ongoing incidence surveillance. This is part of a national program by the Centers for Disease Control (CDC) to evaluate to what extent current HIV incidence is due to recent infections or reporting of newly discovered, yet older, infections.

#### Gender trends:

Throughout the epidemic in Arizona, the majority of *emergent* HIV infections have been among males, who comprise 87.2% (12,562/14,399) of all confirmed Arizona *emergent* HIV infections and 86.7% of current estimated prevalence. But the proportion of female cases is slowly increasing. For the three-year period from 1985 to 1987, 6.6% of *emergent* cases of HIV infection were female, whereas for the three-year period from 2001 to 2003, 12.4% of *emergent* cases were female.

#### Age trends:

Between 1999 and 2003 in Arizona more *emergent* HIV infections were found in the 35-39 year age range than in other age group (717 cases). Next largest was the 30-34 year age group (635), followed by the 40-44 year age group (575). Lengthy and variable latency periods between HIV infection and AIDS defining illness suggest that age at infection can be years (the CDC estimates mean latency =10 years) earlier than age at *emergence*.

There have been 2 reports of *emergent* pediatric (under age 13) HIV infection in 2004 as of the date of this report, and 3 in 2003. Reporting delay may cause incomplete annual counts to remain for some months after a calendar year ends. The 5-year incidence of *emergent* HIV infection among persons under 13 has been 26 (20 HIV, and 6 AIDS cases), and the 3-year incidence has been 12 (9 HIV, and 3 AIDS cases). Despite the high statistical variance observed with low counts, this may suggest a declining trend, but further observation is needed.

#### Race/Ethnicity trends:

Trends of *emergent* HIV infection among all racial ethnic groups in Arizona are reflective of broader population trends with the clear exception of Non-Hispanic Blacks. Non-Hispanic Blacks were just 3.2% of Arizona's population in 2003, but accounted for 12.9% of *emergent* HIV infection. This 3 to 4 fold disproportionate impact is not seen among other minority groups. In 2003 Hispanics of all races were 27.8% of the state population, and 30.8% of *emergent* HIV infection. American Indian/Alaska Natives were 4.8% of the state population in 2003, and 4.8% of *emergent* HIV infection. Asian/Pacific Islanders were 2.2% of the state population in 2003, and 0.7% of *emergent* HIV infection.

#### Risk/Transmission mode trends:

The predominant behavior associated with *emergent* HIV infection in Arizona continues to be men who have sex with men (MSM), which was reported in 71.5% of *emergent* HIV infections in 2003. MSM as a behavior associated with *emergent* HIV infection is rising in Arizona. After declining steadily, the proportion of *emergent* HIV cases reporting MSM behavior reached 59% in 1995, and remained level through 2000. Beginning in 2001, the proportion of *emergent* HIV cases reporting MSM behavior has risen to its current 71.5%.

Injection drug use (IDU) is the second most frequently reported behavior associated with *emergent* HIV infection. In 2003, IDU behavior was associated with 22.3% of *emergent* HIV infection. As a proportion of *emergent* cases, IDU has remained steady over the last 5 years.

High Risk Heterosexual (HRH) is only considered a likely mode of HIV infection when MSM or IDU is not reported. HRH was associated with *emergent* HIV infection in around 5% of cases in the early 1990's. In 2003, HRH was associated with 12.6% of *emergent* HIV infection reports, down from a peak proportion of 16.4% in 2000. Among all risk categories, MSM and HRH are the only categories that appear to be increasing as a proportion of *emergent* HIV infection.

Other Issues:

Throughout 2003 and 2004 lengthy delays in completion of case investigations have hindered timely data analysis, and primary prevention efforts. According to rules for reporting established by ADHS HIV/AIDS, primary case investigation is to be completed and returned to ADHS by County health departments within 30 days. Partner counseling and referral services (PCRS) are a critical component of primary case investigation because all persons who may have been exposed to HIV need to be tested and educated. The mean completion time of case investigations initiated during 2004 was three times the 30-day requirement. By March 15, 2005 there were 156 uncompleted case investigations from 2004 pending for Arizona.

Partner counseling and referral did not result in new discovery of significant numbers of HIV infection primarily because the number of tests conducted as a result of PCRS were so few in number. Maricopa County's 2004 Surveillance Summary reports that 233 of 1169 HIV infected persons submitted for HIV/AIDS surveillance (19.9%) were contacted and interviewed. These interviews resulted in the elicitation of 97 partners, of whom 16 were tested for HIV infection.